

Amendments to the Claims:

1. (currently amended) A method of determining an interference relationship between cells of a cellular communication system comprising at least a first cell and a second cell; the method comprising the step of:

determining an interference relationship between the first cell and the second cell in response to a potential interference relationship between the first and the second cell and a simultaneous occupancy of the first cell and the second cell, wherein simultaneous occupancy is a measure of the probability that communication on equivalent time slots in the first and second cell will occur.

2. (original) A method as claimed in claim 1 further comprising the steps of:

dividing an evaluation interval into sub-intervals;

for each sub-interval determining a sub-interval potential interference in response to the interference characteristics in each sub-interval; and

determining the potential interference relationship for the evaluation interval in response to the sub-interval potential interferences.

3. (original) A method as claimed in claim 1 wherein the step of determining a simultaneous occupancy comprises the steps of:

dividing an evaluation interval into sub-intervals;

for each sub-interval, determining a sub-interval simultaneous occupancy by determining an occupancy of each of the first cell and the second cell; and

determining the simultaneous occupancy for the evaluation interval in response to the sub-interval simultaneous occupancies.

4. (previously presented) A method as claimed in claim 1 further comprising the steps of:
dividing an evaluation interval into a plurality of sub-intervals;

for each sub-interval performing the steps of:

determining a sub-interval simultaneous occupancy by determining an occupancy of each
of the first cell and the second cell,

determining a sub-interval potential interference in response to the interference
characteristics in each sub-interval, and

determining a sub-interval interference relationship in response to the sub-interval
simultaneous occupancies and the sub-interval potential interferences; and

wherein the interference relationship is determined in response to the sub-interval
interference relationships.

5. (previously presented) A method as claimed in claim 3 wherein the step of determining the
simultaneous occupancy for the evaluation interval comprises determining the simultaneous
occupancy as an average of the sub-interval simultaneous occupancies

6. (previously presented) A method as claimed in claim 3 wherein the occupancy of at least
one of the first cell and the second cell is determined from network statistics.

7. (original) A method as claimed in claim 6 wherein the network statistics comprise a
measurement report quantity characteristic.

8. (previously presented) A method as claimed in claim 1 wherein the potential interference
relationship is determined in response to a measurement of a signal level in the second cell
associated with a transmission in the first cell.

9. (previously presented) A method as claimed in claim 1 wherein the potential interference
relationship is associated with assignment of co-channel carriers in the first and the second cell.

10. (previously presented) A method as claimed in claim 1 wherein the potential interference
relationship is associated with assignment of adjacent channel carriers in the first and the second
cell.

11. (previously presented) A method as claimed in claim 1 wherein the potential interference
relationship is in response to a ratio of communication units of the second cell for which an
interference from the first cell will cause a quality level below a given threshold.

12. (previously presented) A method as claimed in claim 1, further comprising the step of frequency planning for the cells of the cellular communication system, frequency planning including the substeps of:

for the combinations of two cells determining a penalty associated with a corresponding frequency allocation in response to the interference relationship of that combination of two cells; and

allocating carrier frequencies to the plurality of cells in response to the penalty values.

13. (previously presented) A method as claimed in claim 12 wherein the frequency allocation is such that the sum of penalty values is minimised.

14. (previously presented) A method as claimed in claim 12 wherein the penalty values are associated with corresponding frequency allocations of co-channel frequencies.

15. (previously presented) A method as claimed in claim 12 wherein the penalty values are associated with the corresponding frequency allocations of adjacent channel frequencies.

16. (previously presented) A method according to previously presented claim 1 wherein the cellular communication system is a GSM communication system.

17-18. (canceled).

19. (currently amended) An apparatus for determining an interference relationship between cells of a cellular communication system comprising at least a first cell and a second cell; the apparatus comprising:

means for determining an interference relationship between the first cell and the second cell in response to a potential interference relationship between the first and second cell and a simultaneous occupancy of the first and the second cell, wherein simultaneous occupancy is a measure of the probability that communication on equivalent time slots in the first and second cell will occur.

20. (new) A method of determining an interference relationship between cells of a cellular communication system comprising at least a first cell and a second cell; the method comprising the step of:

determining an interference relationship between the first cell and the second cell in response to a potential interference relationship between the first and the second cell, a measurement of a signal level in the second cell associated with a transmission in the first cell, and a simultaneous occupancy of the first cell and the second cell, wherein simultaneous occupancy is a measure of the probability that communication on equivalent time slots in the first and second cell will occur.